ENDO PRO MAG
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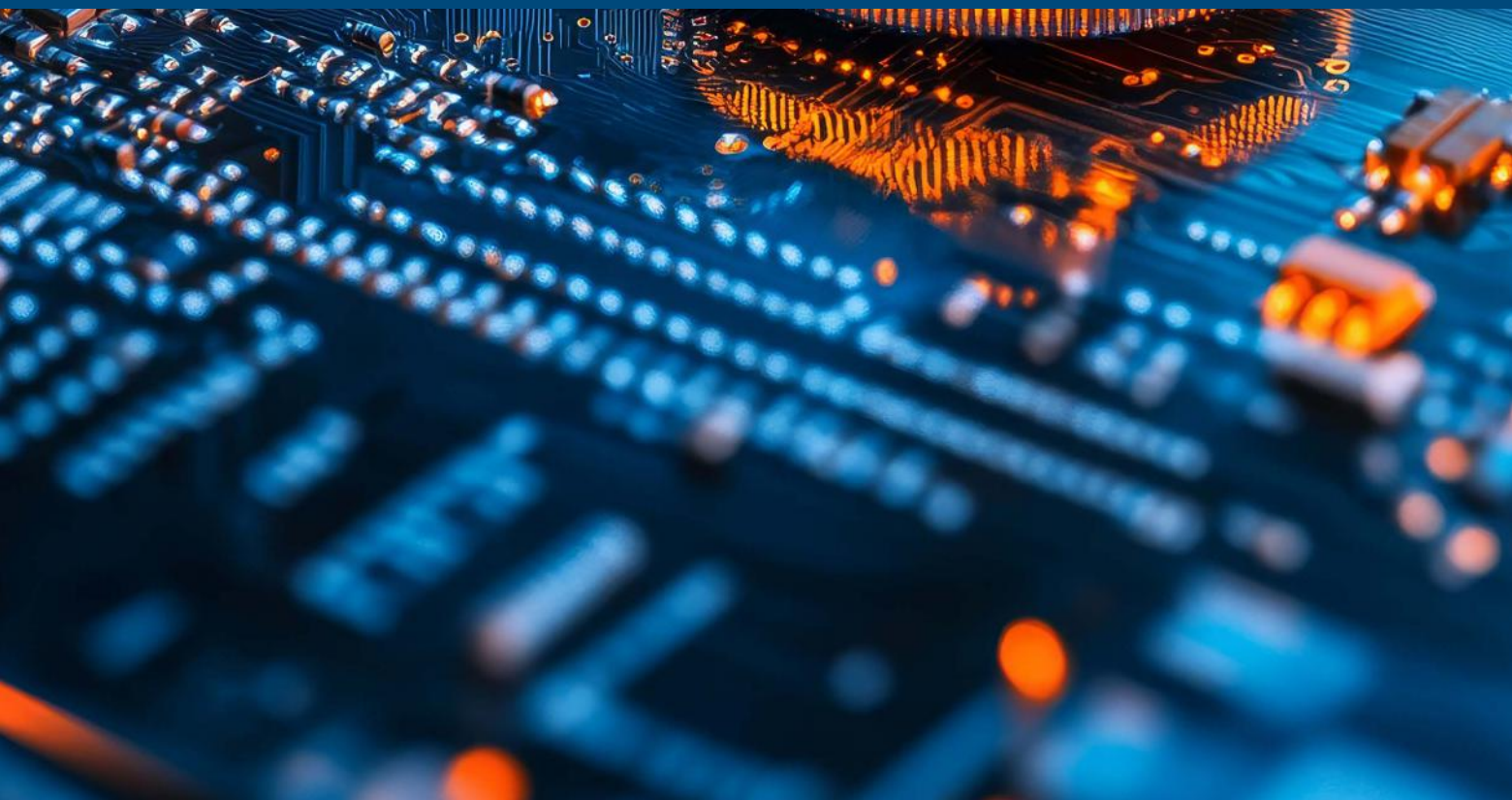
CYBERSECURITY

How to Prevent Cyber Breaches in Endoscopy



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CE COMPLIANT

A New Year's Medley

Welcome to 2025

Hello, 2025!

That compilation of numbers sounds futuristic to me, but alas, 2025 is the present. Here we are. Being born in 1980, I think the year 2025 sounds like Jetsons stuff. Maybe you fellow middle-agers (and older) can relate. We're actually not far off from The Jetsons … self-driving cars are darting about, after all.

Self-driving cars! I still don't think we're making a big enough deal about this as a society. Cars are driving themselves, for crying out loud, but we act like it's normal. And soon, it will be.

In any event, I hope this will be a good year for you personally, and for your practices. Here at EndoPro we'll be unveiling some new changes, such as the reintroduction of the EndoNurse cartoon. Remember her? She was an adorable cartoon character who appeared in every issue of our precursor magazine, EndoNurse. She was often accompanied by her colleague, EndoTech, who I suspect was not just her colleague (wink, wink).

More mysterious was the presence of EndoNurse's dog, Arf. I never understood what a dog was doing in an endoscopy facility. His presence didn't exactly smack of proper infection-control protocol. I mean, Arf was probably licking all kinds of stuff. Granted, dog mouths are weirdly clean, but that's only if you consider that it's a dog's mouth. The standards are low.

Like, where was the Joint Commission in this comic strip? But alas, I inherited the cartoon—I didn't launch it—and it seemed mean to get rid of Arf. It's not his fault that he doesn't meet infection-prevention practices, and I didn't want to sadden EndoNurse.

This year the cartoon EndoNurse will start making appearances, but I'm not sure if this will lead to reemergence of the actual comic strip. We shall see!

Another change is that we'll also be using an "end mark," which is a symbol or icon at the end of an article to signify the article is done. Also, our website is going to improve this year, so stay tuned for updates there.

I truly hope this will be a good year for you. Let's all drive into 2025 with full gusto, but maybe not from a self-driving car (I'm not ready!).

Michelle Beaver

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Small but Mighty
The Endoscopy Department at UPMC

By Lisa Hewitt, MA

A renowned nonprofit healthcare provider and insurer, the University of Pittsburgh Medical Center, or UPMC, is committed to delivering patient-centric care via technological and clinical innovation, research and education. With more than 100,000 dedicated employees, the health system provides more than $2 billion in annual community benefits.

Tucked in a corner of the hospital in Harrisburg, Pennsylvania, the endoscopy department/GI lab includes a waiting room, eight bays for admissions and recoveries, three procedure rooms, and a decontamination room for high-level disinfection.

"We do a combination of outpatient and inpatient procedures in our department," said Letitia Ritzman, endoscopy technical specialist. "Some interventions may include esophageal dilation (balloon and Savary), EMR, variceal banding, APC, decompression, stent placements and removals, foreign body removal, and food bolus removal."

The department employs nine RNs (six full-time, one part-time, and two per diem), three endoscopy technical specialists, a high-level disinfection technician, and a control-desk coordinator. In addition, Ritzman said, the unit director—an RN—helps with staffing. Small but nimble, this dedicated team not only handles the usual panoply of GI procedures like colonoscopies, EGDs, ERCPs, and capsule endoscopies, but they also travel to the OR to assist with intraoperative scopes, or to the ICU to perform emergency scopes when a patient is too sick to be moved.

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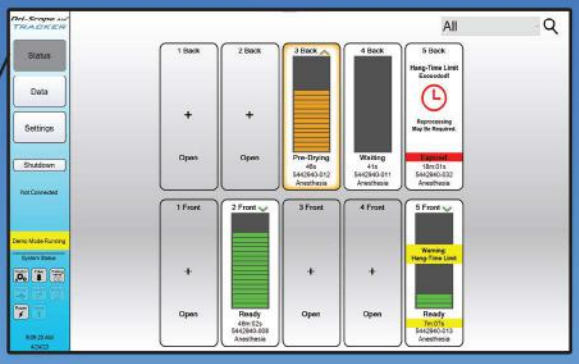

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Ritzman said. “For example, all RNs can perform in admissions, recovery, circulating (in-procedure), technician role, and HLD room. Our technicians float in admissions and recovery to assist the nurses, ‘scrubbing’ in procedures, HLD room, and some are cross-trained at the control desk coordinator position. Our HLD technician can set up carts and order supplies. The control-desk coordinator can assist with admissions, including IV starting.

“Because we all know the amount of work involved in every position, we all jump in to help each other at any given moment without animosity. We rotate evening, weekend and holiday call between 10 staff members. Staff members pick up and trade call time for those in need or wanting vacation.”

Ritzman is particularly impressed with how readily the department director pitches in wherever needed, giving the team flexibility in granting breaks and vacation time. “Because she truly knows what it’s like to be us, she has a great understanding of where we are coming from and what we need to best care for our patients.”

Like most All Stars teams, UPMC’s endoscopy pros know how to celebrate the important moments, creating bonding experiences that make the department a great place to work. “We celebrate our team’s life events by having birthday parties, bridal showers, baby showers, and retirement parties. We have staff picnics and holiday parties. Some staff members go to concerts together while others go antiquing,” Ritzman said. Three staff members have been with the team since the 1980s—another indication of an employee-centric workplace. “It really says something about the work environment when the only time staff members leave is in retirement.”

Andrea Collier, RN, is the newest team member. Hired in July, 2024, Collier already knows how fortunate she is. “Becoming the newest member of this team in July has been amazing! From the start, everyone was welcoming, friendly, and eager to contribute to my success. I am so lucky to have found a team that works effectively and efficiently together. They truly are a well-oiled machine. Many signed up for ‘buddy call’ so I wouldn’t be alone on my first call week. Even though it went from ‘we never get called in’ to getting called in eight times my first week, I know I can depend on any member of this team.”

Ritzman agreed. “I think it’s helpful that we are cross-trained in all the roles of our department. We all know what it’s like to be in each other’s shoes (at least all that’s legally allowed without a license). As a tech, I would be lost without my nurses, and I would also be lost without my HLD technician and control-desk coordinator. My nurses would also agree that I teach them something new all the time. We truly are the best team and our anonymous patient reviews reflect this, with a recent one stating, ‘You can tell they enjoy what they do and like each other.’”

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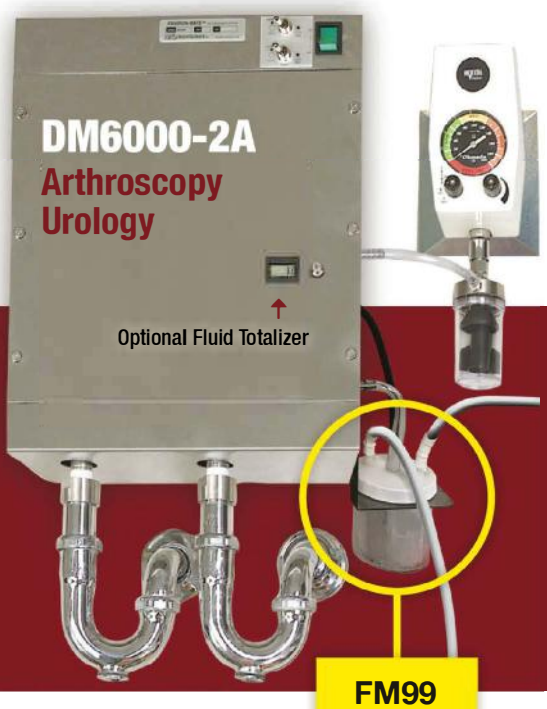

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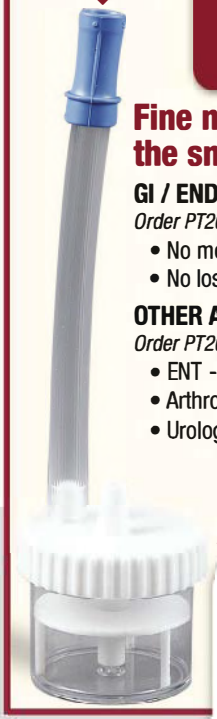

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Cleaning Chemistry

How to Use Chemicals Correctly

By Nancy Chobin, RN, AAS, ACSP, CSPM, CFER

Cleaning is a critical part of endoscope processing. It sounds obvious, but the chemicals we use for cleaning will not function as designed unless used correctly. So, let's review the factors that might compromise our path to a clean endoscope.

Detergents are cleaning agents that dislodge soils and dissolve or suspend them in the solution so they can be removed by washing and rinsing. They are less likely than soap to form films (soap scum) or to be affected by the minerals in hard water.

No single cleaning agent can remove all types of soils or is safe on all materials. Virtually all manufacturers of surgical instruments and devices recommend using a neutral-pH detergent for cleaning.

Several factors affect cleaning but the selection and use of detergents is one of the most critical steps. So, how do we ensure this is being done?

Steps for Effective Cleaning

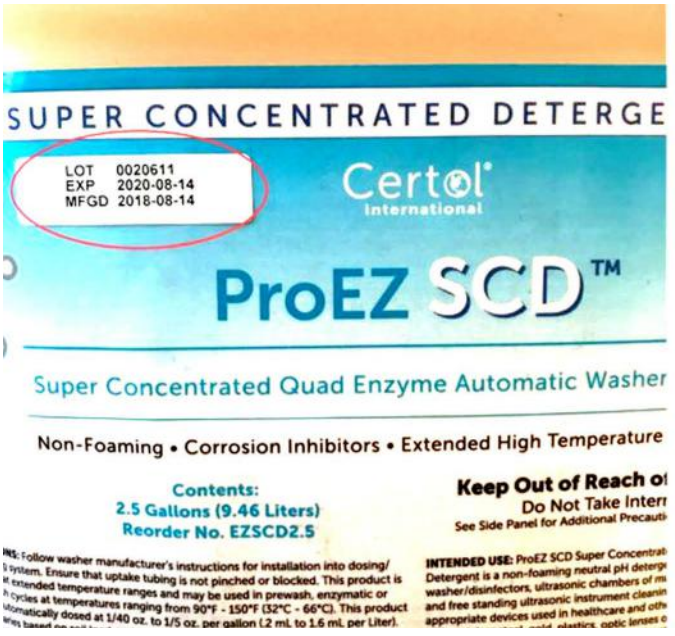
Step 1: Obtain the most current manufacturer's instructions for use (IFU) for the scope or device to be processed. IFUs are updated by manufacturers on a routine basis, so it is important to update your IFUs on a routine basis. Frequency should be specified in a department policy.

Step 2: Review the IFU for any changes from the IFU you currently have on file. Review the entire IFU for any new chemicals validated for use, new cleaning equipment or implements, changes in the water quality for cleaning and/or rinsing, etc.

Step 3: Changes in any recommendations need to be brought to the attention of the department manager and the Infection Prevention Department. If the changes differ from the current policy for processing flexible and semi-rigid endoscopes, the zpolicy should be updated and processing staff trained in the changes.

Step 4: If no changes are indicated, then obtain a current copy for any detergent(s) you are currently using to process your endoscopes and accessories (manually and/or mechanically).

Step 5: Review the detergent IFU for information regarding shelf life. (NOTE: The date of manufacturer and lot number are usually printed on the bottle or container.) The chemicals usually have a lot number, manufacture date and expiration date. The chemical should be used before the expiration date. I suggest you document the information on a log form in the event of a problem with the chemical and/or a recall from the manufacturer (see photos below).



Information about the chemical is printed on the bottle or container.

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While reviewing the IFU of the detergent, look for information about the concentration needed (e.g., one (1) ounce per gallon of water). Enzymatic detergents (neutral pH) are most commonly used because of their ability to break down soils, making them easier to remove, and because of their wide material compatibility. They are the detergent of choice for flexible endoscopes as well.

Step 6: Review the enzyme detergent manufacturer's IFU to determine whether the enzyme is affected by water temperature and if so, what recommended temperature range should be used. If the manufacturer has specific recommendations about water temperature, processing staff should ensure a thermometer is installed in the sink or basin. During use, monitor compliance with the water temperature specified in the IFU. The thermometer should be durable and easy to keep inside the sink or basin.

Temperatures higher than those recommended by the enzyme manufacturer can coagulate protein and break down and/or destroy the enzymes, making cleaning more difficult. Temperatures below the recommended limit can result in sluggish enzymes, reducing their effectiveness. Thermometers should be cleaned as recommended in the IFU, calibrated annually or replaced.

Manual pump in detergent bottle

Step 7: No matter which device is used for dispensing detergents, it should be maintained to ensure correct dilution. If measuring cups are used, they should be cleaned between uses to prevent buildup of the detergent inside the cup, which could affect the correct amount being dispensed. Another method is using a manual pump on the detergent bottle. The pump should be cleaned routinely to prevent buildup of detergent at the dispensing spout; in addition, the amount of solution dispensed should be checked routinely to ensure it has not changed. For example, if one pump should dispense one ounce of detergent, this is easily verified by checking the measuring cup when the detergent is dispensed. However, if the amount of detergent in the cup is less than an ounce, the pump needs to be cleaned. Too much detergent is as bad as too little. Either scenario can impair the effectiveness of the cleaning process.

If an automated system is used to deliver the detergent, it should be routinely calibrated and maintained by the manufacturer. The amount of detergent dispensed should also be verified routinely or as recommended by the manufacturer. Processing staff should be trained in the operation, care and maintenance of this system.

Excessive detergent can also result in incomplete rinsing of the detergent, which can build up over time and interfere with high-level disinfection or sterilization of the endoscope.

Step 8: Comply with the water-quality recommendations in the IFU. Impurities (e.g., calcium/magnesium) in water can adversely affect the cleaning process. Management should ensure the department's water quality has been analyzed and that the water used for cleaning, as well as the initial and final rinses, meets current standards (Association for the Advancement of Medical Instrumentation ST-108 Water for Processing of Medical Devices 2023). If not, management should work to attain compliance with the standard.

Summary

Cleaning medical devices requires knowledge, education, the recommended chemicals, using those chemicals according to the IFU, and monitoring compliance with the IFU. The device manufacturer is responsible to validate which chemical(s) have been tested for efficacy on their devices. But endoscopy technicians must comply with the IFU for the chemical selected. In addition, for staff safety, PPE should be worn when working with cleaning chemicals. However, check with the detergent IFU and Safety Data Sheet to see if any special PPE is required. If so, it should be purchased and staff trained in its use.

Cleaning can be adversely affected when we do not comply with the device and chemical IFUs. Compliance will ensure staff safety and facilitate the cleaning process for devices being processed.

Nancy Chobin, RN, AAS, ACSP, CSPM, CFER, is the president and CEO of Sterile Processing University, LLC, an online education and continuing education website (www.spdceus.com). Reach her at Nancy@SPDCEUS.com.

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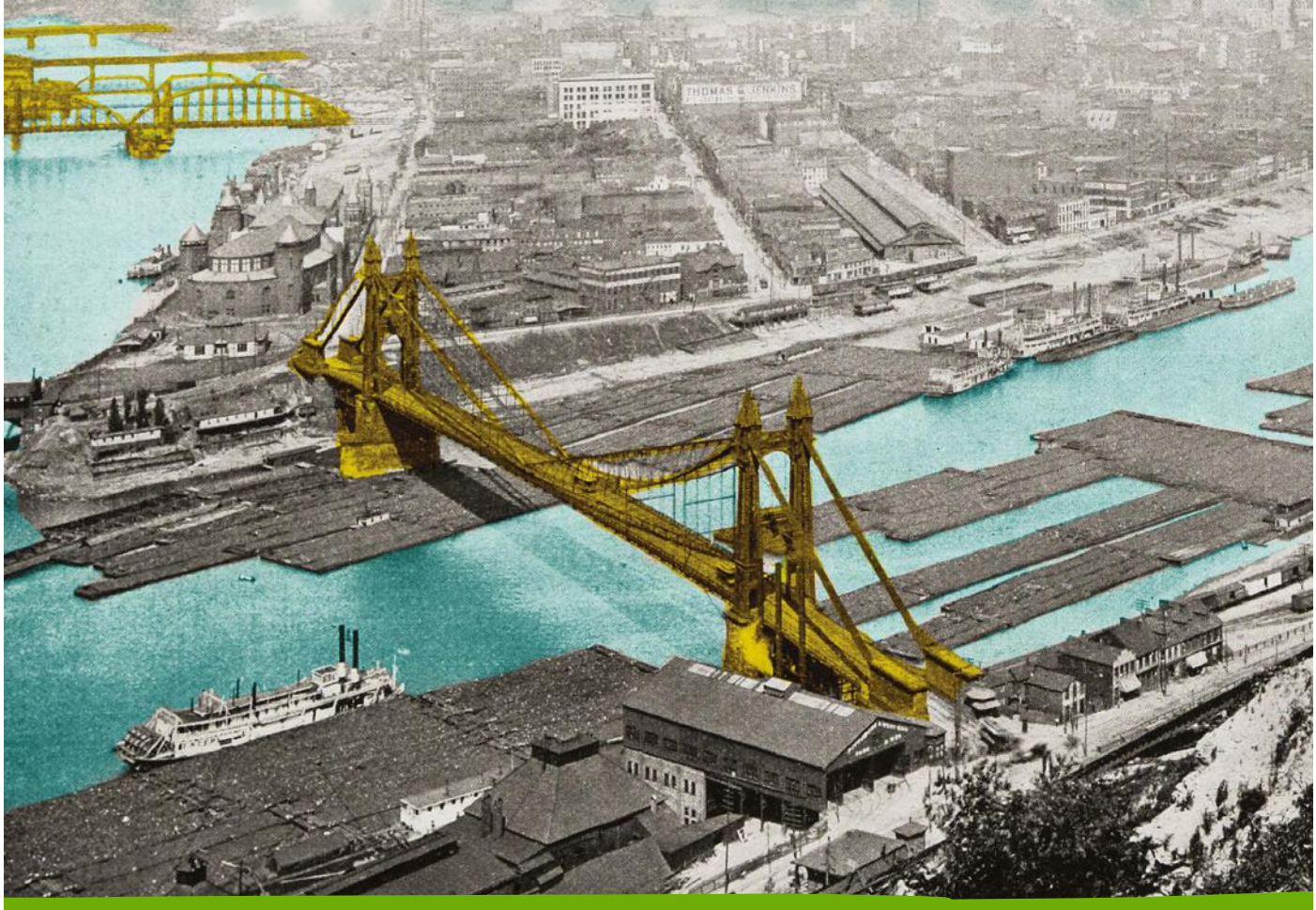

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Rattle When You Walk?

Which Supplements to Choose and Use

By Patricia Raymond, M.D., FACG (retired)

Mom was going through a "phase."

At that time, we lived in Northern California, transferred there courtesy of my father's naval career. It was the late 1960s. I was 7 years old, and my older brother Robert was 8 and a half. My younger brother Michael was exempt, only being 2.

Exempt from what?

Mom had heard about supplementing the diet for health. I don't know what her sources were, back in days of yore before internet—perhaps some ladies' magazine. However, she decided that both she and we needed a supplement drink in the mornings before leaving for school.

What was her dire concoction? All whirled up in our family's avocado green Oster blender was a combination of whole milk, a raw egg, a large dollop of orange juice concentrate from the can, a heaping scoop of Brewer's yeast, and scoops of various other powders—dunno what. Robert and I would have to drink about a cup of the vile and retch-inducing blend before being released to go to school.

Our torture ended when Dad took up arms on our behalf, arguing that Mom could drink anything she wanted, but that we kids should be liberated from drinking the brew if we wanted to quit.

Spoiler alert: We quit.

Flip forward to today, when the internet abounds with proprietary capsule- and shake-supplement blends with limited science to support their use. Although not near as gag-worthy as Mom's blend, it's hard for the average person to figure out which claims are worthy of belief and one's cash. I understand the dilemma; with aging, disease, aches and pains, I take three mainstream pharmaceuticals and 11 (!) nutraceuticals—it's quite the laughable mountain of multicolored capsules and tablets that emerges from my extra-large pill sorter each morning. But are the supplements science-worthy?

I did a second-opinion consultation a couple months ago for a "young" man (early 30s) who was consulting for cryptic elevation in liver tests of recent onset that had stymied his local gastroenterologist. Negative liver serologies, celiac testing, and ultrasound imaging left his physicians shrugging.

At our video chat, he disclosed that he had been fatigued recently; could it be his liver? Digging deeper, it turned out that he had been taking four to five various supplements that were "guaranteed" to give him more energy. The time of onset of his fatigue? Eight months—the age of his first son. Hmmm. I suggested he stop the supplements, and, why yes, his liver enzymes normalized on repeat testing. His new-father fatigue will likely improve when his son deigns to sleep through the night.

So, how do I choose what supplements to take?

1. The supplement in question needs to have peer-reviewed and published clinical data.

2. I add only one new supplement at a time.

3. I reassess in one month/bottle. If questionable improvement in symptoms, I stop the supplement and see if symptoms recur. If asymptomatic, are there possible lab tests to verify improvement?

4. I review supplements every six months, because science changes.

Here is a list of what I choose to take daily, minus the prescriptions:

Women's MVI, Vitafusion 2 qD
Biotin, 5000 mcg qD
Turmeric, 2 grams qD
Omega 3, 2000 mg (vegan, not fish oil)
CoQ10, 100 mg qD
Amla fruit, 1 gram qD
B12, 1000 mcg qD
Magnesium oxide, 300 mg qD
Vitamin D3, 5000 IU gelcap qD
Boswellia serrata, 500 mg qD
Quercetin, 500 mg with Bromelain, 100 mg qD

So let's take my semi-annual, objective, virtual hike up my pill mountain together.

Vitamins: MVI, B12, Vitamin D3

Growing evidence supports that a daily multivitamin may not be very useful for good health. Unless you have a documented vitamin deficiency, or risks of one (like being vegan or over 60 years old), a daily multivitamin while consuming a healthy diet is unnecessary. There is a study that supports use of multivitamins in women reducing cardiovascular mortality (HR: 0.65), although no such benefits are seen in men.

Although a meta-analysis on multivitamin use demonstrated reduction in cancer was observed in men, no such reduction was observed in women; meta-analysis concluded, "Evidence is insufficient to prove the presence or absence of benefits from use of multivitamin and mineral supplements to prevent cancer and chronic disease." So, while I have enjoyed the daily "snack" of the two tasty gummies, I will not be reordering when I complete my current bottle(s).

However, being (mostly) vegan and over 60, the daily B12 is important, since 10-15% of the over-60 population is low in B12.

As for vitamin D, I have a documented moderate vitamin D deficiency despite my gardening sun exposure. Standard replacement doses of 2000 IU didn't normalize my levels, but 5000 IU daily did. As it is one of the fat-soluble vitamins, I have a vitamin D level checked annually to ensure that I don't overshoot this potentially accumulating substance. Up to 35% of the population is low in vitamin D, even though the recommended dosage is a mere 600 IU daily. And there is a modest statistical reduction in overall mortality with vitamin D supplement (RR=0.93). The algorithm has changed for dosing, so if you are replacing vitamin D, make sure to check your levels annually and adjust accordingly.

However—and a reason to assess my supplement use intermittently—an August 2024 clinical practice guideline change by the Endocrine Society advocates against routine vitamin D screening or replacement in most populations. Conclusions included "no significant effect on select outcomes in healthy adults aged 19 to 74 years," "a very small reduction in mortality among adults older than 75 years," in pregnant women a "possible benefit on various maternal, fetal, and neonatal outcomes," and in adults with prediabetes, "moderate certainty of evidence suggested reduction in the rate of progression to diabetes."

Administration of high-dose intermittent vitamin D may increase falls, compared to lower-dose daily dosing. So, should I continue my vitamin D? A conversation for my internist appointment this November. Oh, how much she must enjoy my appointments!

Joint and Muscle Relief: Boswellia, Turmeric, CoQ10, Magnesium

I have knee osteoarthritis, and residual muscle weakness I attribute to long Covid. To reduce my exposure to NSAIAs for the knee osteoarthritis, I have long advocated the use of boswellia. (You'd have to pry it away from me.)

Same with turmeric; in addition to reducing OA pain, benefits include any number of health conditions, so I'll be keeping that too.

The CoQ10 is useful in reducing statin-induced myopathy which includes pain, weakness, cramping and fatigue. As both my dad and I have experienced this myopathy, and I'm on Pravastatin (with supposedly "less" myopathy), I'll be keeping this one. There are various mitochondrial associated benefits as well—actually too many for inclusion here.

The magnesium is to aid muscle recovery from exercise and reduce cramps. Giving myself credit here: I'm currently doing Pilates twice per week, core and balance class twice per week, water aerobics twice per week, and yoga weekly, in addition to gardening. (Yes, retirement is da bomb!) I'll keep my magnesium, please and thank you. Hmm, I've run through my word allotment and have too many remaining supplements to go, so tune in next issue for T2D and dyslipidemia.

So, what has this shared semiannual review done with my supplement list? I'm dumping the multivitamin (and probably the biotin, foreshadowing the next article installment...), and continuing the turmeric, CoQ10, B12, magnesium, and boswellia. I'll give some consideration to releasing the high-dose vitamin D with the input of my physician.

~~Womens MVI Vitafusion 2 qD~~
~~Biotin 5000 mcg qD pending~~
Turmeric 2 grams qD: Yes!
Omega 3 2000 mg (vegan, not fish oil): Pending
CoQ10 100 mg qD: Yes!
Amla fruit 1 gram qD: Pending
B12 1000 mcg qD: Yes!
Magnesium oxide 300 mg qD: Yes!
Vitamin D3 5000 IU gelcap qD: Discussion with internist, possible discontinuation and recheck levels
Boswellia serrata 500 mg qD: Yes!
Quercetin 500 mg with bromelain 100 mg qD: Pending

I believe that I, too, am going through a phase.

Patricia Raymond, MD, FACG, is a retired gastroenterologist and educator savoring the 3rd third of her life in coastal Virginia. She completed her gastroenterology fellowship at the Medical College of Virginia oh, so long ago, and after a 30-year gastro practice in southeastern Virginia and thriving professional speaker and broadcast career, is a popular provider of second opinions in gastroenterology for 2nd MD, now educating people one by one. You will likely find her in her greenhouse or gardens, either propagating fig trees or growing much of her vegan diet organically with donated rabbit poo.

CYBERSEC

How to Prevent Cyber Breaches in Endoscopy

By Philip Lieberman

URITY

What's the difference between an endoscopy device and a compromised ATM? To a hacker, very little.

Endoscopic technology has advanced over the last decade, incorporating artificial intelligence into its diagnostic capabilities and ever more sophisticated tools to enhance its treatment utility. But like any networked medical device, endoscopes leave hospitals and medical facilities vulnerable to cyberattacks.

In 2023 alone, cybersecurity breaches cost the healthcare industry an average of $10.93 million per breach—nearly twice the price tag faced by the second runner-up, the financial industry. The issue has prompted the U.S. Department of Health and Human Services (HHS) to devise a strategy for safeguarding against cyberattacks and ransomware, with the promise of legislation and increased regulations on the horizon.

While the challenge is not simple, hospitals and medical centers can take relatively easy steps to safeguard their data. In fact, the key to protecting security health is not appreciably different from the advice doctors give about maintaining physical health: Undergo regular checkups, keep up to date with antivirus measures and seek care from knowledgeable experts.

Stay Off the Internet

Medical devices should not have internet access. Anything connected to the internet is an easy target for hacking. A 2019 survey found that 80% of hospitals experienced a cyberattack focused on Internet of Things (IoT) devices.

These vulnerabilities have been identified by the FBI as significant security risks. And in many cases, these risks are unnecessary: Medical devices that rely on AI and machine learning do not necessarily need to be connected to the internet to make use of the vast stores of data that feed AI capabilities.

Air Gap

In addition to being unsafe, internet access for medical devices is unnecessary. A network that is not connected to any external network—such as the internet—is known as an "air-gapped" network. Communication between a scope and a hospital's EMR, for instance, can be achieved through secured, air-gapped networks. These can be bridged using dual-homed machines that can connect to both the air-gapped and internet-connected networks. Setting up these connections takes skill and expertise: upfront costs that, when facing a potential $11 million breach, hospitals may decide is well worth the investment (more on that later).

Update Older Operating Systems

Older operating systems like Windows 95 and Windows 7, 8, 10 (security updates end after October 14, 2025) that are or will no longer be supported may lack the necessary security patches to protect against attacks. If a legacy system is not being supported, and a hospital's devices are not on an air-gapped network, they may be vulnerable to attack.

In a 2022 statement, the FBI warned about the cybersecurity vulnerability of unpatched and outdated medical devices and legacy systems, noting that "40% of medical devices at the end-of-life stage offer little to no security patches or upgrades" that could protect against attacks.

Protect Against Viruses

Antivirus software is often not installed on medical devices due to conflicts with medical software or vendor policies. In some cases, the machines themselves may be underpowered, lacking the memory or CPU capacity to run antivirus software and the clinical application. In other cases, hospitals are loath to install antivirus software for fear device manufacturers will no longer service equipment. The result is an unprotected device that can easily be compromised.

Like physical viruses, computer viruses have led to real-world deaths: An Alabama hospital settled a lawsuit in 2021 involving the death of a newborn who suffered birth complications during a ransomware attack at the hospital that prevented doctors from receiving timely access to the baby's fetal monitoring results.

Check Credentials

Hospitals often give full administrative rights to devices without understanding the implications. A hacker who accesses an endoscope's software gains the same level of trust the device enjoys. So, in the case of an endoscope that has been given admin access, that hacker would be able to use the device to gain full access to a hospital's medical records. This puts patients—and the hospital—at significant risk.

To limit the damage in the event of a security compromise, low-power accounts should be used on all devices. It is also important to conduct regular network scans to identify unauthorized devices, administrative access and suspicious software installations.

Break It Up

Micro-segmentation—a network security strategy that divides a network into very small, isolated segments—can also protect against a bad actor gaining full control of a hospital's network through a breach in a single device. Like air-gapped networks, this takes skill and expertise to create and maintain but can be well worth the investment.

Also known as a "black box" solution, micro-segmentation requires the mapping of data and workflows and can introduce friction into the day-to-day operation of a hospital or medical center. But the benefit lies in greatly limiting any breach.

Keep IT Local

Offshoring IT support can reduce cost, but it can also greatly reduce security. Without a skilled team to maintain your network and devices, scan for issues and protect security, hospitals and medical facilities leave themselves open for attack.

At least 29% of data breaches occur through third parties—with three-quarters of those occurring through vendors that provide technical services such as software, IT products and related services. Keeping your IT team local—or even better, in-house—helps you control visibility, streamline communication and ensure that everyone on your team is working within the same regulatory framework.

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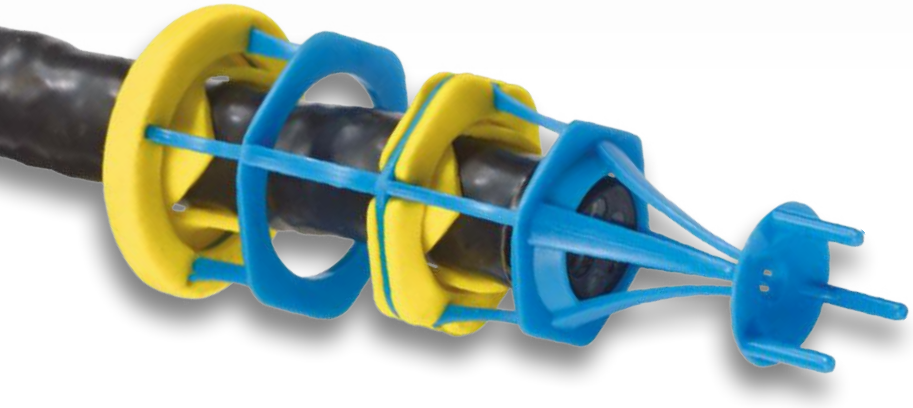

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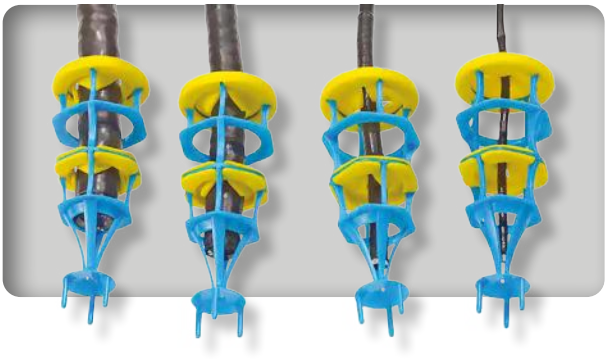

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Don't Rely on Insurance

As a work-around to supporting expensive IT departments, some medical facilities purchase cyber insurance. This may be shortsighted at best and ineffective at worst. Insurance companies will only pay out if a business takes normal and adequate care to secure against threat. By letting go of—or offshoring—their IT departments and hoping for the best, hospitals demonstrate the exact opposite: They haven't taken adequate care to secure against a cyberattack. As a result, hospitals are left with a costly breach that their insurance companies will not cover.

Don't Skip the Small Stuff

Password-protect your devices. Add firewalls, patch management and access controls for all networked devices. Yes, these measures add a layer of friction to a procedure, but the small inconvenience is well worth it. Passwords are among the most reliable ways to control data flows and prevent unauthorized access to sensitive information.

That said, remember to change the default passwords that may come with your device: In February 2023, an

Hospital Hackings Surge

Patient Data and Safety Are at Risk

By EndoPro Staff

The same technology that makes it convenient for patients to request prescription refills, view test results and schedule appointments with physicians has also made it easier for hackers to launch crippling cyberattacks on hospitals and healthcare systems, and analysts say there's no end in sight.

"These cyberattacks on our hospital infrastructures here and abroad only highlight the very urgent need for improved cybersecurity in healthcare overall," said Steven McKeon, cybersecurity expert and founder of MacguyverTech, and MacNerd.

In 2023, ransomware attackers most frequently targeted the United States' healthcare and public health sector, according to a new FBI report, far surpassing other critical services like transportation and energy.

According to analysts, cybercriminals launch these very intricate and damaging ransomware attacks to lock up critical computer systems and steal data as a means of extortion.

Why is healthcare such an easy target? One reason might be its aging technology.

"Our company's experience and its increasing demand to fix outdated technology that is in some cases more than a decade old is quite alarming," McKeon said. "With one in three Americans impacted by data breaches, modernizing these systems and enhancing cybersecurity measures are essential in protecting patient data and ensuring safety and continuity of care."

The healthcare system needs help in the form of increased federal funding and enforcement of required cybersecurity practices and enhancements. With rising cyber threats, McKeon believes protecting and educating others about security has never been more critical.

"Collaborative efforts between governments and the healthcare industries are vital to tackling these threats and securing these systems for the long haul," McKeon said. With more than 25 years of experience in the technology world, he focuses on enhancing cybersecurity practices through layered security, which deters hackers by increasing the effort needed to breach defenses.

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https://www.ic3.gov/AnnualReport/Reports/2023_ic3report.pdf

infusion pump manufacturer issued a warning that one of its devices had a password vulnerability that might allow access to personal information.

Do a Sweep

When someone leaves your organization, make sure they no longer have access to your network. Reviewing login credentials and access controls

(Continued on page 24)

Medical Data Breach of a Different Sort:

When Healthcare Workers are the Victims

By EndoPro Staff

Unfortunately, odds are good you've received notice at some point in your life about your data being leaked in one capacity or another—usually through someone hacking into a business database.

Sometimes, the breach involves a healthcare organization, such as the massive 2016 hack into Banner Health that exposed the protected health information of nearly 3 million people. A recent large data leak affected healthcare in a different way: The breach targeted medical workers.

According to Cybernews research team, a massive data leak at a Florida-based recruitment company affected more than 14,000 hospitals and medical workers. In June of 2024, the researchers discovered "an open web directory hosting a database backup belonging to MNA Healthcare. This U.S. company is known for offering staffing services for healthcare workers and connecting them with the most suitable healthcare organizations."

The scope of the leak is staggering. Cybernews reported the compromised information includes:

- data from 11,000 hospitals
- 14,000 doctors' accounts
- 37,000 potential leads
- 11,000 job applications

The leaked sensitive data included full names, addresses, phone numbers, email addresses, dates of birth, work experience, jobs assigned by MNA Healthcare, communications with MNA Healthcare representatives, encrypted Social Security numbers (SSNs).

Criminal intent may include financial fraud and identity theft. The exposed data also makes the victims more susceptible to phishing attacks and other scams. Stolen social security numbers make it easier for criminals to open credit cards, apply for loans, or provide a gateway for collecting more information.

Several problems were present regarding data storage, according to Aras Nazarovas, a security researcher at Cybernews. "The data leak causes further concerns regarding the company's infrastructure security, as the database backup for their platform was improperly stored, as well as a configuration file containing the key likely used to decrypt SSNs."

The investigation is ongoing.

If you have been the victim of a data leak or identity theft, immediately report it to your local police, and online at identitytheft.gov. This online resource can help you recover from the incident and provides information so you can protect yourself against future attacks. In addition, you may wish to contact all three credit reporting agencies—Equifax, Experian, and Transunion—and put a credit freeze on your accounts.

A data breach is no fun, but with the help of local and national law enforcement, you can recover your assets—and your peace of mind.

for endoscopy equipment—and all equipment—will help ensure they are properly secured. This will help prevent unauthorized access and maintain the confidentiality and integrity of your data. We call credentials for people who are no longer with the organization "zombie accounts," and like horror movie zombies, they leave hospitals vulnerable to attack. In some cases, the "zombies" are knowingly acting against the law. In others, however, they might not know they still retain access to their old accounts. So, if their personal accounts are compromised, they won't know to alert their former employers to the risk of a cyberattack.

Key Takeaways

In 2017, criminals in Mexico famously inserted endoscopes through the cash exit openings in ATMs to manipulate sensors in the dispenser and simulate physical authentication that caused the ATM to spit out cash like a Vegas slot machine hitting the jackpot.

But bad actors don't need actual endoscopes in their hands to use these and other medical devices to access valuable personal information or hold hospitals ransom. To protect healthcare data, hospitals and medical centers need to consider safety breaches when purchasing or updating new tools and take significant steps to enhance their cybersecurity.

- Keep medical devices off the internet.
- Implement air-gapped networks for medical devices.
- Update older operating systems and employ patches for older devices.
- Protect against viruses.
- Avoid giving administrative rights to devices.
- Implement micro-segmentation to control network traffic granularly.
- Maintain a dedicated IT security department and networking team with the necessary skills to configure and secure networks properly.
- Password-protect all medical devices.
- Regularly sweep for unauthorized access.

Just as doctors advise patients to maintain their physical health, the healthcare industry must perform regular checkups, stay updated with antivirus measures and consult with cybersecurity experts to keep their cybersecurity health in excellent shape.

Philip Lieberman is a cybersecurity expert and founder and previous president/CEO of Lieberman Software Corporation (now a part of BeyondTrust). He has more than 40 years of experience in the software industry. Lieberman is the founder and resident/CEO of Analog Informatics Corporation, the mission of which is to improve patient and family experiences interacting with healthcare providers. He is frequently quoted by international business and mainstream media and has published numerous books and articles. Lieberman taught at UCLA and Learning Tree International and has authored many computer science courses.

Food Is Medicine

Connecting Patients to SNAP and WIC

By the Food Research & Action Center

The Food Research & Action Center (FRAC) is a nonprofit that improves the nutrition, health, and well-being of people struggling against poverty-related hunger in the United States through advocacy and partnerships, and by advancing bold and equitable policy solutions.

Healthcare practitioners don't often equate endoscopy with social services. However, any medical professional—particularly those in gastroenterology—has unique access to information about whether a person is receiving proper nutrition. Does your office screen for food insecurity in your patients? If not, it may be a good idea to start.

Across the United States, healthcare providers are now screening millions of patients for food insecurity, spurred in part by several large-scale national quality and standards-setting initiatives requiring screenings for health-related social needs (HRSN), including food insecurity. For example, given new Centers for Medicare & Medicaid Services (CMS) requirements, hospitals will be required to screen patients for food insecurity and refer patients to appropriate resources to improve patient well-being and prevent readmission related to a social determinant of health.

Many healthcare providers are addressing food insecurity by connecting patients to the Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), school meals, and other federal nutrition programs, which are enormously well-studied, with documented benefits to health, nutrition and well-being. This should serve as the foundational intervention to address food insecurity.

Referring Patients

The primary intervention for healthcare systems to address health-related food insecurity and improve patient nutrition and health should be ensuring eligible patients are accessing the federal nutrition programs. These include SNAP, WIC, after-school and summer meal programs, childcare meals, school breakfast and lunch, and congregate and home-delivered meals for older adults.

(Continued on page 28)

ENDO PRO MAG

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These federal nutrition programs are available nationwide, come with billions of dollars in federal funding, and have reams of research attesting to their efficacy in improving nutrition, health, and well-being of participants. Connecting patients to federal nutrition programs such as SNAP and WIC would also result in an overall decrease in healthcare costs and readmissions and provide patients with a better quality of life.

Using healthcare settings to connect patients to SNAP and WIC has become a national priority. The efficacy of these efforts is highlighted in the American Academy of Pediatrics' 2015 "Promoting Food Security for All Children" policy statement (reaffirmed in 2021) that extols the importance of connecting children and their families to SNAP, WIC, school meals and other federal nutrition programs.

Additionally, the 2022 White House National Strategy on Hunger, Nutrition, and Health encourages the healthcare sector to "screen for food insecurity and connect people to the services they need," including SNAP and WIC. In November 2023, the White House released the first ever U.S. Playbook to Address Social Determinants of Health, which underscores the importance of SNAP and WIC in improving food security and includes commitments from CMS and the U.S. Department of Agriculture (USDA) to use data to bolster enrollment of Medicaid participants in food assistance programs, such as WIC, SNAP, and free and reduced-price school meals.

WIC is the ultimate fruit-and-veggie prescription program. The WIC food package makes permanent increases for fresh and vegetables benefits for millions of eligible WIC participants across the country. Children's benefits for fruits and vegetables are $25 per month (up from $9) and pregnant and postpartum participants rise to $44–$49 per month (up from $12).

Federal Nutrition Programs Improve Health Outcomes

An ever-growing body of research underscores how participation in these federal nutrition programs is a winning strategy to improve nutrition and health.

As the largest federal nutrition program, SNAP has a profound impact on population-level economic, nutrition and health outcomes—particularly when its benefit levels are adequate for purchasing healthy foods. Enrollment in SNAP is linked to improved health outcomes, better medication adherence, and lower risk of heart disease and obesity. In addition, SNAP is linked to better access to preventive healthcare and reduced healthcare. Findings from a study of more than 60,000 older adults with low incomes show that one year after participants start receiving SNAP, they are 23% less likely to enter a nursing home and 4% less likely to be hospitalized.

WIC was established in 1972 as a medically tailored public nutrition

intervention for at-risk mothers and children. WIC is the original "Food Is Medicine" program, proven to prevent obesity and improve food security, dietary intake, birth and health outcomes, and economic stability. The longer children participate in WIC, the healthier their diets. Extensive research suggests that WIC contributes to better birth outcomes and healthier babies. In fact, a study conducted in 2019 by Nianogo, et al., showed that participation in WIC resulted in cost savings, including both savings pertaining to WIC intervention costs as well as savings due to tangible and intangible costs associated with pre-term birth.

School Meals

The National School Lunch Program—the nation's second largest food and nutrition assistance program—makes it possible for school children in the U.S. to receive a nutritious lunch every school day. Millions of children also benefit from school breakfast each day. Children of families at low or moderate income levels can qualify for free or reduced-price school meals.

Meals must meet federal nutrition standards, which currently require schools to serve more whole grains, fruits and vegetables. Participation in school meals has favorable impacts on a number of outcomes, including food security, dietary intake, obesity and health status. Research has demonstrated that school meals are the healthiest meals that many schoolchildren eat during the day. Research shows that students who participate in the school meals programs consume more whole grains, milk, fruits and vegetables during mealtimes and have better overall diet quality than nonparticipants.

Steps Healthcare Providers Can Take

Healthcare providers, bolstered by anti-hunger collaborators, can ensure patients are accessing SNAP, WIC and other federal nutrition programs by utilizing a range of strategies and resources, such as FRAC's online course, "Screen & Intervene: Addressing Food Insecurity Among Older Adults." Healthcare providers use various approaches to connect patients to SNAP and WIC, including two types of food referrals.

- Passive referrals: Healthcare providers give patients information about food resources, including information on SNAP, WIC, other federal nutrition programs, and additional resources such as food pantries. In some cases, handouts may include more detailed—and often localized—information on how to access SNAP or WIC from pertinent agencies. Healthcare providers may also use texting to promote opportunities to connect patients to SNAP and WIC.

- Active referrals: Healthcare providers connect patients with programs either through on-site assistance or through referral partnerships. Through on-site assistance, patients are referred to full- or part-time on-site case managers, patient navigators, community health workers, resource coordinators or social workers, who assist them in applying for SNAP or WIC. Through referral partnerships, healthcare providers

can collaborate with state or local community-based organizations or agencies. Examples include creating a process by which patients who are interested in being connected to SNAP and WIC consent to a partner organization reaching out to them; hosting a partner organization or agency at the health provider site who provides patients with assistance applying for SNAP or WIC; and/or developing a formal Memorandum of Understanding (MOU) with partners to provide SNAP and WIC application assistance.

Healthcare providers can leverage the growing efforts around the Office of Disease Prevention and Health Promotion's Food Is Medicine program as one opportunity to connect patients to the federal nutrition programs. The Department of Health and Human Services considers Food Is Medicine to include "approaches that focus on integrating consistent access to diet- and nutrition-related resources" as a critical component. Connecting patients to the federal nutrition programs fits within this approach and constitutes an important primary intervention.

Section 1115 waivers should be considered. Section 1115 waivers (sometimes known as Section 1115 demonstrations), allow states to experiment with new approaches to Medicaid and to tailor portions of it, such as by testing new services. As states continue to be approved for Section 1115 waivers for medically tailored meals, groceries, and other nutrition interventions, these services should supplement, not supplant, existing federal, state and local nutrition supports. State Medicaid agencies should partner with other state agencies and social service providers to ensure that beneficiaries experiencing food insecurity are connected to programs like SNAP and WIC. Medicaid also needs to explain how it will track and improve upon enrollment in SNAP and WIC.

Research continues to grow and evolve on the healthcare sector's increased awareness of patients' health-related social needs—including food insecurity—and its efficacy addressing these needs. Yet, while many healthcare providers are connecting patients to SNAP and WIC, the published literature that looks at healthcare providers connecting patients to SNAP and WIC is limited.

Future Study Recommendations

Too few of the published studies provide needed insights as to how healthcare providers are creating sustainable systems to connect patients to SNAP and WIC. Given the vital role of these programs to patient health, it is important to understand how healthcare organizations can sustainably provide screening and active referrals (whether on-site or provided by another organization).

Future research is needed to improve the efficiency and cost-effectiveness of active referral systems, as well as ways to continue moving toward broader systems improvements such as seamlessly connecting people to Medicaid, SNAP and WIC through fully integrated applications.

Additionally, we still have significant limitations in understanding the full scope of patients who may be at risk of food insecurity, as well as those who could benefit from referrals to food assistance programs. Many studies highlight the stigma and social vulnerability associated with sharing food insecurity and other social needs with healthcare providers. Studies also suggest that families may underreport social problems. In addition, the screened population may not be representative of the overall population because universal screening is not always implemented in healthcare. More qualitative surveys would be beneficial to understand families and their experience with food insecurity and how best to connect them with supplemental resources.

More research is needed to assess individual knowledge, attitudes and beliefs around screening for food insecurity and around SNAP and other food benefit programs. Specifically for WIC, research is needed on effective strategies to improve the retention of children older than 1 year. Future work should focus on understanding how to increase the rate at which those who are reporting food insecurity are being linked to resources.

A significant body of evidence suggests that enrollment in SNAP and WIC improves health, helps manage chronic disease, and reduces health cost and utilization. Likewise, children's participation in school meals favorably impacts food security, dietary intake, obesity level and health status. As screening for food insecurity continues to proliferate, it is imperative that healthcare providers are educated on the importance of SNAP, WIC and other federal nutrition programs as primary interventions to improve health outcomes and on which methods to connect patients to these programs are most effective.

Healthcare providers can play a key role in closing participation gaps in access to nutrition programs. Planning is needed to determine whether healthcare providers have capacity for a passive referral or an active navigation model, with the goal of eventually establishing a sustainable, effective process that is integrated with their electronic health system. Future research should build out evidence-based best practices that healthcare providers can tailor to their circumstances and integrate in their standard practice for screening and intervening.

Building sustainable healthcare systems to ensure every eligible patient is connected to SNAP, WIC, school meals and other federal nutrition programs is a winning intervention to address food insecurity and improve health.

Authors include Alexandra Ashbrook, WIC and Root Causes director at Food Research & Action Center (FRAC); Allison Lacko, a FRAC research scientist, and Afaf Qasem, MS, RDN, LDN. The Food Research & Action Center improves the nutrition, health, and well-being of people struggling against poverty-related hunger in the United States through advocacy and partnerships, and by advancing bold and equitable policy solutions. For more information about FRAC, or to sign up for FRAC's e-newsletters, visit www.frac.org. For research citation, visit https://bit.ly/40mjMLs.

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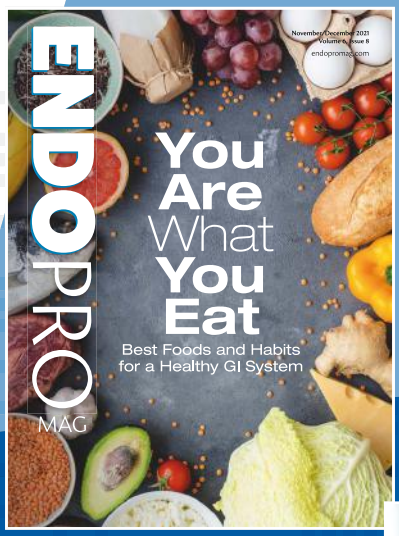

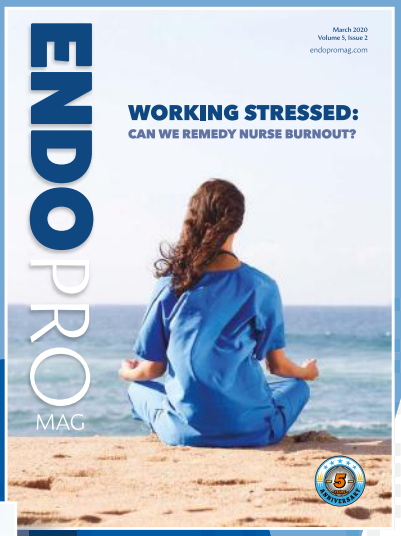

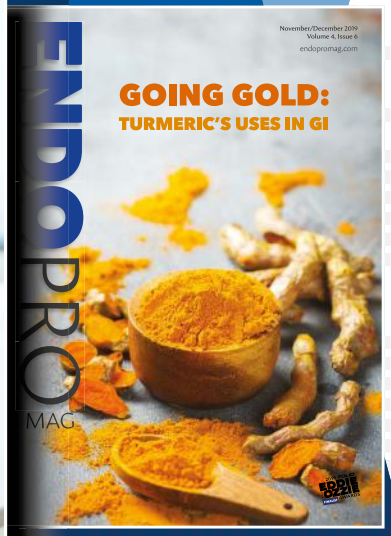

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